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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,108	02/25/2004	Paul Fernand Wilms	SVL920030134US1	8791

45727 7590 11/13/2007
IP AUTHORITY, LLC
RAMRAJ SOUNDARARAJAN
4821A Eisenhower Ave
Alexandria, VA 22304

EXAMINER	
SAEED, USMAAN	

ART UNIT	PAPER NUMBER
2166	

MAIL DATE	DELIVERY MODE
11/13/2007	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/785,108
Filing Date: February 25, 2004
Appellant(s): WILMS ET AL.

Ramraj Soundararajan
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 8/13/2007 appealing from the Office action mailed 03/09/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,668,253	Thompson	12-2003
2003/0172091	Norcott	9-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-17, and 19-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Thompson et al.** (**Thompson** hereinafter) (U.S. Patent No. 6,668,253) in view of **William D. Norcott.** (**Norcott** hereinafter) (U.S. PG Pub No. 2003/0172091).

With respect to claim 1, Thompson teaches **a method for archiving task information obtained from a data-warehousing environment comprising steps of:**

“a. obtaining operational metadata from said data-warehousing environment” as updating load statistics metadata on the data warehouse server, indicating that the information is in a "loading" state (**Thompson** Col 5, Lines 2-4).

“b. extracting task information from said operational metadata” as process starts with extracting data from the operational systems (**Thompson** Col 1, Lines 46-47). Retrieving operational data from data sources application using a data flow plan (**Thompson** Col 4, Lines 31-32).

“c. storing said extracted task information in a buffer” as loading the data is loaded into an appropriate temporary staging table (**Thompson** Col 4, Lines 34-35).

“d. refreshing said buffer with changes in said operational metadata” as the loading of information comprises one of: a round-robin approach used for refresh processing and extracting information from permanent tables (**Thompson** Col 4, Lines 56-59.)

“moving task information from said buffer to an archive” as staging server obtains data from the data source application via requests and places the data into temporary staging tables to prepare for the transformation and cleansing process prior to movement of the data to the data warehouse server (**Thompson** Abstract).

“said archived task information used in data analysis and mining” as FIG. 26 depicts aspects of metadata analysis according to embodiments of this invention (**Thompson** Figure 26).

Thompson teaches the elements of claim 1 as noted above but does not explicitly discloses, **“changes in operational metadata.”**

However, **Norcott** discloses, **"changes in operational metadata"** as change set 220 comprises change table 221 and change table 223, which also correspond to respective tables (not shown) on the OLTP database 113. The information that defines the structure of the change sets 210, 220 and change tables 211, 213, 221, 223 is maintained in system metadata 230 (**Norcott** Paragraph 0030). The OP 237 column contains a code indicating the type of operation that resulted in the change data (**Norcott** Paragraph 0035).

Further, **Norcott** teaches **"said archived task information used in data analysis and mining"** as a "data warehouse," for the purpose of collecting, aggregating, and analyzing the information contained in the OLTP databases. Data warehouses can grow very large, ranging from gigabytes to many terabytes of data (trillions of bytes). The task of moving data from its original source in OLTP systems to the data warehouse is commonly referred to as data extraction, transport, and loading (ETL) (**Norcott** Paragraph 0005).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

Claim 30 is essentially the same as claim 1 except it set forth the claimed invention as an article of manufacture and is rejected for the same reasons as applied hereinabove.

With respect to claim 2, **Thompson** teaches **"a method for archiving task information, as per claim 1, wherein said task is an extract, transform, load (ETL) task"** as a data flow plan is a set of complex instructions used to extract, transform and load the data into the warehouse (**Thompson** Col 21, Lines 51-53).

Claims 11 and 31 are essentially the same as claim 2 except claim 31 set forth the claimed invention as an article of manufacture and are rejected for the same reasons as applied hereinabove.

With respect to claim 3, **Thompson** teaches **"a method for archiving task information, as per claim 1, wherein said buffer is a staging table"** as loading the data is loaded into an appropriate temporary staging table (**Thompson** Col 4, Lines 34-35).

Claims 12, and 32 are essentially the same as claim 3 except claim 32 set forth the claimed invention as an article of manufacture and are rejected for the same reasons as applied hereinabove.

With respect to claim 4, **Thompson** does not explicitly teach, **"changes in operational metadata are obtained via a trigger mechanism."**

However, **Norcott** teaches, **"changes in operational metadata are obtained via a trigger mechanism"** as conventional systems have used triggers for synchronous change data capture, either by using the CREATE triggers statement or by using an internal mechanism with equivalent functionality (**Norcott** Paragraph 0008).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

Claims 14 and 33 are essentially the same as claim 4 except claim 33 set forth the claimed invention as an article of manufacture and are rejected for the same reasons as applied hereinabove.

With respect to claim 5, **Thompson** teaches **"a method for archiving task information, as per claim 2, wherein said ETL task information comprises any of: ETL task execution statuses, run identification numbers, definitions, control flows, and execution schedules"** as Load Completion date/time stamp: Provides the execution date and time of a Sagent's Data Flow Plan. Load Status: Provides the status of the plan whether it was completed or aborted (**Thompson** Col 33, Lines 44-48).

Claim 34 is essentially the same as claim 5 except it set forth the claimed invention as an article of manufacture and is rejected for the same reasons as applied hereinabove.

With respect to claim 6, **Thompson** teaches **"a method for archiving task information, as per claim 2, wherein said archive is queried to report any of: completed tasks, pending tasks, duration of execution, error codes and messages, scheduling problems, scheduling changes, overdue ETL task run schedules, and overdue ETL task misses"** as Load Completion date/time stamp: Provides the execution date and time of a Sagent's Data Flow Plan. Load Status: Provides the status of the plan whether it was completed or aborted (**Thompson** Col 33, Lines 44-48).

Claims 22 and 35 are essentially the same as claim 6 except claim 35 set forth the claimed invention as an article of manufacture and are rejected for the same reasons as applied hereinabove.

With respect to claim 7, **Thompson** teaches **"a method for archiving task information, as per claim 2, wherein content of said archive is extracted from and stored in one or more tables"** as (**Thompson** Col 2, Lines 30-60).

Claim 36 is essentially the same as claim 7 except it set forth the claimed invention as an article of manufacture and is rejected for the same reasons as applied hereinabove.

With respect to claim 8, **Thompson** teaches **"a method for archiving task information, as per claim 7, wherein said tables indicate any of: ETL task errors, completed tasks, task temporary status, and task scheduled"** as writing data with an error to an error table along with an error message describing a reason for rejection (**Thompson** Col 5, Lines 58-60 & Col 2, Lines 30-60).

Claims 27 and 37 are essentially the same as claim 8 except claim 37 set forth the claimed invention as an article of manufacture and are rejected for the same reasons as applied hereinabove.

With respect to claim 9, **Thompson** teaches **"a method for archiving task information, as per claim 8, wherein said tables are queried to generate reports comprising any of: sequence of task executed in a process, last task executed, task or tasks failed, duration of execution of tasks in a process, task or tasks retried, and statistics associated with a task run or runs, errors associated with failed tasks, tasks failing with a specified error, task run schedule, de-scheduled tasks, and tasks having a specified temporary status"** as Load Completion date/time stamp: Provides the execution date and time of a Sagent's Data Flow Plan.

Load Status: Provides the status of the plan whether it was completed or aborted (**Thompson** Col 33, Lines 44-48).

Claims 28 and 38 are essentially the same as claim 9 except claim 38 set forth the claimed invention as an article of manufacture and are rejected for the same reasons as applied hereinabove.

With respect to claim 10, **Thompson** teaches **"a method for capturing and recording task information obtained from a data-warehousing environment for analysis, archival and mining comprising steps of:**

"a. uniquely identifying each task within a run" as EIM includes data extraction and movement, data transformation and cleansing, database update and tuning, and database access (**Thompson** Col 2, Lines 2-4). Updating load statistics metadata on the data warehouse server, indicating that the information is in a "loading" state (**Thompson** Col 5, Lines 2-4).

"b. selecting one or more of said uniquely identified tasks to monitor" as updating load statistics metadata on the data warehouse server, indicating that the information is in a "loading" state (**Thompson** Col 5, Lines 2-4).

"c. capturing data-warehousing population activities dynamically by

i. obtaining operational metadata containing task information relevant to said selected task or tasks" as updating load statistics metadata on the data warehouse server, indicating that the information is in a "loading"

state (**Thompson** Col 5, Lines 2-4). Process starts with extracting data from the operational systems (**Thompson** Col 1, Lines 46-47). Retrieving operational data from data sources application using a data flow plan (**Thompson** Col 4, Lines 31-32).

"iii. storing results of said calculating step in a buffer, and moving selected buffer data to an archive" as staging server obtains data from the data source application via requests and places the data into temporary staging tables to prepare for the transformation and cleansing process prior to movement of the data to the data warehouse server (**Thompson** Abstract).

"said archive used in data analysis and mining" as FIG. 26 depicts aspects of metadata analysis according to embodiments of this invention (**Thompson** Figure 26).

Thompson teaches the elements of claim 10 as noted above but does not explicitly discloses, **"ii. calculating changes in operational metadata."**

However, **Norcott** discloses, **"ii. calculating changes in operational metadata"** as change set 220 comprises change table 221 and change table 223, which also correspond to respective tables (not shown) on the OLTP database 113. The information that defines the structure of the change sets 210, 220 and change tables 211, 213, 221, 223 is maintained in system metadata 230 (**Norcott** Paragraph 0030). The OP 237 column contains a code indicating the type of operation that resulted in the change data (**Norcott** Paragraph 0035).

Further, **Norcott** teaches **"said archive used in data analysis and mining"** as a "data warehouse," for the purpose of collecting, aggregating, and analyzing the

information contained in the OLTP databases. Data warehouses can grow very large, ranging from gigabytes to many terabytes of data (trillions of bytes). The task of moving data from its original source in OLTP systems to the data warehouse is commonly referred to as data extraction, transport, and loading (ETL) (**Norcott** Paragraph 0005).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

With respect to claim 13, **Thompson** teaches, **"a method for capturing and recording task information, as per claim 10, wherein either one of a system or a user performs said selecting step"** as the user interface (UI) may comprise a task list, buttons/controls for launching components of the system; and a content area for task related data and output (Thompson Col 3, Lines 66-67 & Col 4, Line 1).

With respect to claim 15, **Thompson** teaches **"operational metadata and to said buffer"** as retrieving operational data from data sources application using a data flow plan (**Thompson** Col 4, Lines 31-32). Loading the data is loaded into an appropriate temporary staging table (**Thompson** Col 4, Lines 34-35).

Thompson teaches the elements of claim 15 as noted above but does not explicitly discloses **"attachment of trigger mechanism."**

However, **Norcott** discloses **"attachment of trigger mechanism"** as triggers 115 are employed to implement a synchronous change data capture mechanism (**Norcott** Paragraph 0027).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

With respect to claim 16, **Thompson** teaches **"selected task in said operational metadata"** as updating load statistics metadata on the data warehouse server, indicating that the information is in a "loading" state (**Thompson** Col 5, Lines 2-4). Retrieving operational data from data sources application using a data flow plan (**Thompson** Col 4, Lines 31-32).

Thompson teaches the elements of claim 16 as noted above but does not explicitly disclose, **"wherein said trigger mechanism attached to operational metadata is activated by changes."**

However, **Norcott** discloses, **"wherein said trigger mechanism attached to operational metadata is activated by changes"** as triggers 115 are employed to implement a synchronous change data capture mechanism (**Norcott** Paragraph 0027).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's**

teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

With respect to claim 17, **Thompson** teaches **"a method for capturing and recording task information, as per claim 15, whereupon termination of said selected task; said task status information is extracted from said operational metadata, if said selected task terminates with a failure or warning status, then error messages associated with said selected task or tasks are also extracted from said operational metadata, and said extracted task information is transformed into a format necessary for storage in said buffer"** as process starts with extracting data from the operational systems (**Thompson** Col 1, Lines 46-47). Retrieving operational data from data sources application using a data flow plan (**Thompson** Col 4, Lines 31-32). Capturing error data (**Thompson** Col 24, Line 8). Load Data Formatting Error Tables--During the Sagent load procedures, insert rows of information into data format error tables with identified format issues (**Thompson** Col 24, Lines 18-20). Loading the data is loaded into an appropriate temporary staging table (**Thompson** Col 4, Lines 34-35).

With respect to claim 19, **Thompson** teaches **a method for capturing and recording task information, as per claim 17, wherein upon termination of said selected task:**

"b. said buffer is refreshed with changes in said operational metadata before said trigger mechanism was activated" as the loading of information comprises one of: a round-robin approach used for refresh processing and extracting information from permanent tables (**Thompson** Col 4, Lines 56-59).

"c. said archive is emptied into a backup medium or media, and said buffer data relevant to said selected task is moved from said buffer to said archive" as staging server obtains data from the data source application via requests and places the data into temporary staging tables to prepare for the transformation and cleansing process prior to movement of the data to the data warehouse server (**Thompson** Abstract).

Thompson teaches the elements of claim 19 as noted above but does not explicitly disclose, **"a. said trigger mechanism attached to said operational metadata is activated."**

However, **Norcott** discloses, **"a. said trigger mechanism attached to said operational metadata is activated"** as triggers 115 are employed to implement a synchronous change data capture mechanism (**Norcott** Paragraph 0027).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

With respect to claim 20, **Thompson** does not explicitly teach **"the granularity of data moved from said buffer to said archive is variable."**

However, **Norcott** discloses **"the granularity of data moved from said buffer to said archive is variable"** as main memory 405 can also be used for storing temporary variables or other intermediate information during execution of instructions to be executed by the processor 403 (**Norcott** Paragraph 0064).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

With respect to claim 21, **Thompson** teaches, **"refresh operations on said buffer"** as the loading of information comprises one of: a round-robin approach used for refresh processing and extracting information from permanent tables (**Thompson** Col 4, Lines 56-59).

Thompson teaches the elements of claim 21 as noted above but does not explicitly disclose, **"the activation of said trigger mechanisms attached to said operational metadata."**

However, **Norcott** discloses, **"the activation of said trigger mechanisms attached to said operational metadata"** as triggers 115 are employed to implement a synchronous change data capture mechanism (**Norcott** Paragraph 0027).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

With respect to claim 23, **Thompson** teaches **"a method for capturing and recording task information, as per claim 18, wherein said backup step comprises: selecting archive data to backup, backing up said selected archive data, extracting said selected archive data from said archive, filtering said selected archive data from said archive, and moving to a table said filtered archive data"** as backup frequency and procedures: Daily as part of a full system backup using the full FGIS backup solution (**Thompson** Col 15, Lines 13-16). The loading of information comprises one of: a round-robin approach used for refresh processing and extracting information from permanent tables (**Thompson** Col 4, Lines 56-59). EIM provides the ability to create user definable parameters for querying the data warehouse and filtering information (**Thompson** Col 10, Lines 1-3).

With respect to claim 24, **Thompson** teaches **"a method for capturing and recording task information, as per claim 18, wherein said archive is backed up at configured intervals"** as backup frequency and procedures: Daily as part of a full system backup using the full FGIS backup solution (**Thompson** Col 15, Lines 13-16).

With respect to claim 25, **Thompson** teaches **"a method for capturing and recording task information, as per claim 19, wherein said buffer data to be backed up is associated with a current timestamp"** as Load Completion date/time stamp: Provides the execution date and time of a Sagent's Data Flow Plan. Load Status: Provides the status of the plan whether it was completed or aborted (**Thompson** Col 33, Lines 44-48).

With respect to claim 26, **Thompson** teaches **"a method for capturing and recording task information, as per claim 25, wherein said current timestamp is utilized in backup restoration"** as Load Completion date/time stamp: Provides the execution date and time of a Sagent's Data Flow Plan (**Thompson** Col 33, Lines 44-48).

With respect to claim 29, **Thompson** teaches **a data-warehousing environment system for capturing and recording task information, said data warehousing environment implemented in computer storage, said computer storage storing:**

"a. task information extracted from operational metadata" as updating load statistics metadata on the data warehouse server, indicating that the information is in a "loading" state (**Thompson** Col 5, Lines 2-4). Process starts with extracting data from

the operational systems (**Thompson** Col 1, Lines 46-47). Retrieving operational data from data sources application using a data flow plan (**Thompson** Col 4, Lines 31-32).

"c. staging table storing said task information" as loading the data is loaded into an appropriate temporary staging table (**Thompson** Col 4, Lines 34-35).

"e. an archive table storing task information from said staging table" as staging server obtains data from the data source application via requests and places the data into temporary staging tables to prepare for the transformation and cleansing process prior to movement of the data to the data warehouse server (**Thompson** Abstract).

Thompson teaches the elements of claim 29 as noted above but does not explicitly disclose, **"Attachment of the trigger mechanism."**

However, **Norcott** discloses, **"Attachment of the trigger mechanism."** as triggers 115 are employed to implement a synchronous change data capture mechanism (**Norcott** Paragraph 0027).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

(10) Response to Argument

A. § 103(a) rejection of claims 1-17 and 19-38 over Thompson in view of Norcott.

Regarding independent claims 1 and 30, Appellant argues that **Thompson** does not teaches, **"extracting task information from operational metadata"** from a data-warehousing environment.

In response to the Appellants arguments, the arguments were fully considered but were not deemed persuasive. Examiner respectfully submits that **Thompson** teaches, **"extracting task information from operational metadata"** as process starts with extracting data from the operational systems (**Thompson** Col 1, Lines 46-47). Retrieving operational data from data sources application using a data flow plan (**Thompson** Col 4, Lines 31-32).

Further, **Thompson** teaches the first phase retrieves the operational data using a Sagent data flow plan. *A data flow plan is a set of complex instructions used to extract, transform and load the data into the warehouse.* Several data flow plans may be required for each data set. Each row of data is sent through a series of validation and cleansing steps. Once the row of data has passed specified validations, the data is loaded into the appropriate temporary staging table(s).

Once the data has been loaded into the staging table(s), a second phase of validations and cleansing is performed. This includes validations such as referential integrity and aggregate processing.

At any time during the transformation and cleansing process an *error occurs*, the row of data with the error is written to an error table along with an error message describing the reason for rejection. Once the errors have been corrected, the data is reprocessed during the next run of the associated data flow plan (See Warehouse Data Load Error Correction for additional information) (**Thompson** Col 21, Lines 60-67).

Therefore, an ETL task is being performed by Thompson, which is the same task as performed by the Appellant.

FIG. 26 depicts the point at which certain Meta Data elements are trapped during the Extraction and Transformation phase (**Thompson** Col 32, lines 50-52).

Examiner interprets the business metadata and technical metadata tables in columns 32-33, of Thompson as operational metadata. The metadata elements trapped during extraction and transformation phase contain task information (such as Load completion data/timestamp, Load status, Load duration, Date updated, utilization statistics, errors, etc.), which are related to ETL task information as explained by Appellant in claim 5. Therefore, ETL task information is being extracted/trapped from the operational metadata/technical metadata.

Further, regarding independent claims 1 and 30, Appellant argues that **Thompson** does not teach **"refreshing said buffer with changes in said operational metadata."**

In response to the preceding argument, Examiner respectfully submits that **Thompson** teaches **"refreshing said buffer with changes in said operational**

metadata" as the loading of information comprises one of: a round-robin approach used for refresh processing and extracting information from permanent tables (**Thompson** Col 4, Lines 56-59, Col 4, Lines 64-67, Col 5, Lines 1-14).

Further, **Thompson** teaches updating load statistics metadata on the data warehouse server, indicating that the information is in a "loading" state; (c2) renaming the current table to a temporary table as a temporary holding area; (c3) renaming the load table to the actual table, making the latest information available to the users; (c4) renaming the temporary table to the load table to prepare for the next period's processing batch; (c5) updating the load statistics metadata on the data warehouse server indicating that the information is in a "updated" state and updating the date, time, number of records loaded; (d) deleting all of the information from the normalized, denormalized, and summary load tables to prepare for the next period's processing batch (**Thompson** Col 5, Lines 2-14). _Examiner interprets updating of the load statistics metadata and renaming the temporary table/buffer to the load table as the refresh with new changes/updates._

Thompson teaches the elements of claims 1 and 30 as noted above but does not explicitly discloses, **"changes in operational metadata."**

However, **Norcott** discloses, **"changes in operational metadata"** as change set 220 comprises change table 221 and change table 223, which also correspond to respective tables (not shown) on the OLTP database 113. The information that defines the structure of the change sets 210, 220 and change tables 211, 213, 221, 223 is maintained in system metadata 230 (**Norcott** Paragraph 0030). The OP 237 column

contains a code indicating the type of operation that resulted in the change data (**Norcott** Paragraph 0035).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

Further, regarding independent claim 10, Appellant argues that **Thompson** does not teach **"uniquely identifying each task within a run"** and **"selecting one or more of said uniquely identified tasks to monitor."**

In response to the preceding argument, Examiner respectfully submits that **Thompson** teaches **"uniquely identifying each task within a run"** as EIM includes data extraction and movement, data transformation and cleansing, database update and tuning, and database access (**Thompson** Col 2, Lines 2-4). Updating load statistics metadata on the data warehouse server, indicating that the information is in a "loading" state (**Thompson** Col 5, Lines 2-4) **"selecting one or more of said uniquely identified tasks to monitor"** as updating load statistics metadata on the data warehouse server, indicating that the information is in a "loading" state (**Thompson** Col 5, Lines 2-4).

Further, **Thompson** teaches the first phase retrieves the operational data using a Sagent data flow plan. <u>*A data flow plan is a set of complex instructions used to extract,*</u>

transform and load the data into the warehouse. Several data flow plans may be required for each data set. Each row of data is sent through a series of validation and cleansing steps. Once the row of data has passed specified validations, the data is loaded into the appropriate temporary staging table(s).

Once the data has been loaded into the staging table(s), a second phase of validations and cleansing is performed. This includes validations such as referential integrity and aggregate processing.

At any time during the transformation and cleansing process an error occurs, the row of data with the error is written to an error table along with an error message describing the reason for rejection. Once the errors have been corrected, the data is reprocessed during the next run of the associated data flow plan (See Warehouse Data Load Error Correction for additional information) (**Thompson** Col 21, Lines 60-67).

A data flow plan has a set of complex instructions used to extract transform and load, which has multiple runs associated with it. Load is one of the identified tasks, which is being monitored because Thompson is performing load error corrections.

Further, regarding independent claim 29, Appellant argues that **Thompson and Norcott** do not teach **"trigger mechanism attached to a staging table and staging table storing the task information."**

In response to the preceding argument, Examiner respectfully submits that **Thompson** teaches **"staging table storing said task information"** as loading the

data is loaded into an appropriate temporary staging table (**Thompson** Col 4, Lines 34-35).

Further, **Thompson** teaches the first phase retrieves the operational data using a Sagent data flow plan. _A data flow plan is a set of complex instructions used to extract, transform and load the data into the warehouse._ Several data flow plans may be required for each data set. Each row of data is sent through a series of validation and cleansing steps. Once the row of data has passed specified validations, the data is _loaded into the appropriate temporary staging table_(s).

Once the data has been loaded into the staging table(s), a second phase of validations and cleansing is performed. This includes validations such as referential integrity and aggregate processing.

At any time during the transformation and cleansing process an error occurs, the row of data with the error is written to an error table along with an error message describing the reason for rejection. Once the errors have been corrected, the data is reprocessed during the next run of the associated data flow plan (See Warehouse Data Load Error Correction for additional information) (**Thompson** Col 21, Lines 60-67).

Therefore, an ETL task is being performed by Thompson, which is the same task as performed by the Appellant.

FIG. 26 depicts the point at which certain Meta Data elements are trapped during the Extraction and Transformation phase (**Thompson** Col 32, lines 50-52).

Examiner interprets the business metadata and technical metadata tables in columns 32-33, of Thompson as operational metadata. The metadata elements trapped

during extraction and transformation phase contain task information (such as Load completion data/timestamp, Load status, Load duration, Date updated, utilization statistics, errors, etc.), which are related to ETL task information as explained by Appellant in claim 5.

Therefore, ETL task information is being extracted/trapped from the operational metadata/technical metadata and is being loaded/stored into the appropriate temporary staging tables.

Thompson teaches the elements of claim 29 as noted above but does not explicitly disclose, **"Attachment of the trigger mechanism."**

However, **Norcott** discloses, **"Attachment of the trigger mechanism"** as triggers 115 are employed to implement a synchronous change data capture mechanism (**Norcott** Paragraph 0027). Figure 1 of Norcott also shows the attachment of triggers 115 to a database.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Norcott's** teachings would have allowed **Thompson** to provide a synchronous change data capture system that can be transactionally consistent without a costly post processing phase.

Appellant's arguments directed towards the rejections of dependent claim 2-9, 11-17, 19-28, and 31-38 reiterate deficiencies Appellant made in the rejection of the independent claims 1, 10, 29, and 30 and do not address any new points. Therefore

examiner submits that if the rejection of the independent claims is deemed proper, the rejection of claims 2-9, 11-17, 19-28, and 31-38 should also be upheld.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Usmaan Saeed

Examiner

Conferees:

Hosain Alam

Supervisory Patent Examiner

HOSAIN ALAM
SUPERVISORY PATENT EXAMINER

Mohammad Ali

Supervisory Patent Examiner

MOHAMMAD ALI
SUPERVISORY PATENT EXAMINER